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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/074,765	02/12/2002	Ashish Banerji	PD-201157	9961

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EXAMINER
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VO, TUNG T

ART UNIT	PAPER NUMBER
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2613

DATE MAILED: 09/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/074,765	BANERJI ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Tung Vo	2613	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 July 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments with respect to claims 1-22 filed 07/14/2005 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

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3. Claims 1-3, 5, 7, 12, 14, and 16-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Gonzales (US 5,414,469).

Re claims 1, 14, 16-19, and 21-23, Gonzales discloses a video compression system for carrying out a method, wherein the video compression system comprises:

means (fig. 1) for grouping video frames that are between consecutive I-frames (col. 3) into a video data set as a plurality of data sequences (GOP n and GOP n+1 of fig. 1);

means (Transform Unit of fig. 11; see also Video Input, DCT 8x8, DCR 4x4, DCT 2x2 of fig. 12b) for splitting the video data set into a plurality of homogeneous files as a plurality of individual data sequence (figs. 5 and 6, note Full Resolution MB, 1/4 Resolution MB...) ; and

means (Entropy Coding Unit of fig. 11; see also DCT 8x8, DCT 4x4, DCT 2x2 of fig. 12b) for individually compressing each of the homogeneous files as each of the individual sequence;

means (Multiplexor of fig. 11) for multiplexing the individually compressed files into a bit stream (Compressed Video as a bitstream of fig. 11) .

Re claims 2 and 20. A method according to claim 1, wherein the video frames include P-frames and B-frames (Figure 5 shows N= DISTANCE BETWEEN I-FRAMES and N= DISTANCE BETWEEN P-FRAMES, OTHERS = B-FRAMES).

Re claim 3, Gonzales further discloses said splitting includes storing mode information of the video data set and motion components in separate files (MCP 16x16, MCP 8x8, MCP 4x4, and Motion Estimation 16x16 of fig. 12b, see also Transform Unit of fig. 11).

Re claim 5, Gonzales wherein said splitting includes storing B-frame components of the video data set and P-frame components of the video data set in separate files (Transform Unit of fig. 11).

Re claim 7, Gonzales further wherein said splitting includes storing different color components of the video data set in different files (fig. 6, see also Transform Unit of fig. 11).

Re claim 13, Gonzales further discloses wherein said homogeneous files have similar statistical properties (fig. 11).

4. Claims 1-3, 11-14, and 16-23 are rejected under 35 U.S.C. 102(e) as being anticipated by Wu et al. (US 6,700,933).

Re claims 1, 14, 16-19, and 21-23, Wu discloses a video compression system for carrying out a method, wherein the video compression system comprises:

means (150, 152 of fig. 8, Note P frames in GOP that are between I-frames (158 of fig. 8)) for grouping video frames that are between consecutive I-frames into a video data set as a plurality of data sequences (P-Frames in GOP 154 of fig. 8);

means (fig. 9) for splitting the video data set into a plurality of homogeneous files (Enhancement layer and Based Layer, each layer is file of fig. 9, see also fig. 19) as a plurality of individual data sequence (206, P-Frame of fig. 9) ; and

means (226(1)-226(n) of fig. 9), see also (506, 508, 509 of fig. 19) for individually compressing each of the homogeneous files as each of the individual sequence;

means (the process can be generally described as the combined operations of the base layer encoder (506 of fig. 19), the low quality enhancement layer encoder (508 of fig. 19), and the high quality enhancement layer encoder (509 fig. 19)) for multiplexing (combining) the individually compressed files into a bit stream .

Re claims 2 and 20, Wu further discloses wherein the video frames include P-frames and B-frames (MPEG standard has P frames and B frames in GOP).

Re claim 3, Wu further discloses wherein said splitting includes storing mode information of the video data set and motion components in separate files (2-0, 206, 304 of fig. 19).

Re claim 5, Wu further discloses wherein said splitting includes storing B-frame components of the video data set and P-frame components of the video data set in separate files (206 of fig. 9).

Re claims 11-13, Wu further discloses wherein said compressing includes bit plane encoding quantized transform coefficients obtained from the video data set; wherein said compressing includes performing a run-length encoding of bit planed encoded coefficients; wherein said homogeneous files have similar statistical properties (562, 582 ... of fig. 19).

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 4 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al. (US 6,700,933) in view of Carnahan (US 5,414,780).

Re claims 4 and 16, Wu teaches splitting video serial into panels and storing the B components and P components in separate files (Frame Reordering delay 215 of fig. 2) but not include storing mode information of the video data set and motion components that includes storing horizontal components of the video data set and vertical components of the video data set in separate files as claimed.

However, Carnahan teaches storing mode information of the video data set (horizontal and vertical vectors) and motion components NxM horizontal and vertical image data block include vectors) that include storing horizontal components of the video data set and vertical components of the video data set in separate files (col. 3, line 49-col. 4, line 3) and performing a run-length encoding of bit planed encoded coefficients (col. 11 and 12, note TRANSFORMER (52), QUANTIZER (54), and CODER (56) performs transforming, quantizing and nm-length coding the video data set).

Therefore, taking the teachings of Wu and Carnahan as a whole, it would have been obvious to one of ordinary skill in the art to incorporate the step of storing the mode information and motion components into the separate files (memories) and the transformer, quantize and coder of Carnahan into the encoder of Gordon for the same purpose of run-length coding the transformed, quantized video data set that retrieves from the separate files.

Doing so would provide the quantization process reduces the magnitude or number of bits of each quantized word and the coder circuit to implement coding in an efficient manner.

7. Claims 6, 7, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al. (US 6,700,933) in view of to claim 1 and in view of Kato et al. (US 5,719,986).

Re clam Claims 6, 7, and 16, Wu teaches the encoder for encoding the video sequence into the MPEG compliant transport stream using predicted frame information but not include storing mode 3 B- frame components of the video data set and mode 0, 1, and 2 B-frame components of the video data set in separate files and different color components of the video data set in different files as claimed.

However, Kato teaches storing mode 3 B- frame components of the video data set (61 of fig. 3, note intra prediction for B-frame and mode 0, 1, and 2 B-frame components (14, 23 of fig. 3, note forward prediction, backward prediction, and bi-directional prediction) of the video data set in separate files and storing different color components of the video data set in different files (12 of fig. 3, see also fig. 5C, note Y, Cb and Cr are different color components).

Taking the teachings of Gordon and Kato as a whole, it would have been obvious to one of ordinary skill in the art to incorporate the teachings intra-prediction mode for B- frame having forward, backward, and bi-directional prediction of Kato into the encoder of Wu to improve efficiency of encoding. Doing so would provide to a decoder a higher quality image.

8. Claims 8 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al. (US 6,700,933) in view of to claim 1, and further in view of Weinberger et al (US 5,680,129).



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Re claims 8 and 16, Wu fails particularly teach mapping negative values in one of the homogeneous files into positive values, and file header as claimed.

However, Weinberger teaches mapping negative values in one of the homogeneous files into positive values (col. 15, lines 59-64), and file header. Therefore, taking the teachings of Wu and Weinberger as a whole, it would have been obvious to one of ordinary skill in the art to modify the technique of mapping negative values into one of homogeneous files into positive values into the encoder of Gordon to improve performance of encoding color image. Doing so would result in a more efficient compression of the image.

9. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al. (US 6,700,933) in view of to claim 1 and in view of Moroney et al. (US 5,771,239).

Re claims 9 and 10, Wu does not particularly teach applying a grammar based code and a YK algorithm as claimed.

However, Moroney teaches the MPEG coding technique uses a formal grammar ("syntax") and a set of semantic rules for the construction of bitstreams to be transmitted, wherein the grammar encoding would obviously have YK algorithm to encode the homogeneous files.

Therefore, taking the combined teachings of Moroney and Wu as a whole, it would have been obvious to one of ordinary skill in the art to incorporate the teachings of Moroney into the method of Wu to improve coding efficiency.

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10. Claims 15 and 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al. (US 6,700,933) as applied to claims 1 and 14, and in view of Chujoh et al. (US 6,317,461).

Claim 15, Wu does not particularly teach prefixing a corresponding header to each of the separate files, said header indicating a size of a corresponding separate file as claimed.

However, Chujoh teaches prefixing a corresponding header to each of the separate files, said header indicating a size of a corresponding separate file (figs. 41A, 41B, 42A and 42B). Therefore, taking the teachings of Chujoh and Wu as a whole, it would have been obvious to one of ordinary skill in the art to incorporate the teachings of Chujoh into system of Wu for prefixing the corresponding header of each layer (file) so that the decoder to easily detect the prefixed header during decoding. Doing so would allow the decoder to easily decode the high quality image.

### ***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See previous Office Action.


### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tung Vo whose telephone number is 571-272-7340. The examiner can normally be reached on Monday-Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on 571-272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Tung Vo  
Primary Examiner  
Art Unit 2613